

CLAIMS:

1. A milking device comprising at least a teat receiving flexible sleeve,
5 adapted to be positioned on/over a teat, **characterized in that** at least a first portion thereof comprises a material, selected from the group consisting of i) thermo-plastic elastomers (TPE), as defined in ISO 18064, ii) plasticized PVC, iii) Vinyl TPE, said material or combination of materials exhibiting the following properties:
- 10 a) a hardness between 25 shore A and 50 shore D;
b) a Young's modulus between 0.1 MPa and 50 MPa;
c) a tensile strength above 0.5 MPa; and
d) a minimum elongation of 50% without breakage.
- 15 2. A milking device as claimed in claim 1, wherein the material is a thermoplastic vulcanisate (TPV), comprising two phases, namely a thermoplastic continuous phase and a cross-linked rubber as a discontinuous phase.
- 20 3. A milking device as claimed in claim 2, wherein the discontinuous phase comprises a butadiene rubber; silicone; EPDM; or NBR optionally grafted with acrylates or anhydrides, or a combination of any or all of these.
4. A milking device as claimed in claim 2, wherein the rubber is selected
25 from nitrile rubber, styrene-butadiene rubber, butyl rubber, halo-butyl rubber, ethylene-propylene rubber, polyisoprene, polychloroprene, polybutene copolymers, chlorosulfonated polyethylene.
5. A milking device as claimed in claim 2, 3 or 4, wherein the continuous
30 phase comprises a crystalline polyolefin that can be selected from polyethylene (HDPE, LDPE or LLDPE), polypropylene, or copolymers or mixtures thereof.
6. A milking device as claimed in any preceding claim, having at least a further portion comprising a TPE material different from that of the first portion.

7. A milking device as claimed in claim 6, wherein said first portion comprises a core material, and wherein said further portion is at least a partial surface coating on said core material.

5 8. A milking device as claimed in claim 7, wherein the core material has a $\tan \delta < 0,20$.

9. A milking device as claimed in claim 7 or 8, wherein the core material is an SBS or SEBS, and the surface coating is an EPDM based TPV or NBR.

10 10. A milking device as claimed in claim 6, wherein said first portion is made from a material exhibiting a higher stiffness/hardness than said further portion.

11. A milking device as claimed in claim 10, wherein the material exhibiting
15 a higher stiffness/hardness is a hard EPDM based TPV or a hard NBR based TPV, TPU, TPA or TEEE, and the softer part is a soft EPDM based TPV or a soft NBR based TPV.

12. A milking device as claimed in any preceding claim, exhibiting a service
20 temperature between -60 and $+200^{\circ}\text{C}$.

13. A milking device as claimed in any preceding claim, wherein said
material or combination of materials is resistant to acids in the concentrations
commonly used in washing or cleaning procedures for milking equipment in the
25 dairy industry.

14. A milking device as claimed in claim 14, wherein the material or
combination of materials is resistant to formic acid, propionic acid, peracetic acid,
and/or H_2O_2 .

15. A milking device as claimed in any preceding claim, wherein said
material or combination of materials is resistant to alkali in the concentrations
commonly used in washing or cleaning procedures for milking equipment in the
30 dairy industry.

16. A milking device as claimed in claim 15, wherein said material or combination of materials is resistant to ammonia, NaOH, and KOH.
- 5 17. A milking device as claimed in any preceding claim, wherein said material or combination of materials is resistant to chlorine, ozone and to UV irradiation and thermal oxidation.
- 10 18. A milking device as claimed in any preceding claim, wherein said material or combination of materials exhibits a tear strength between 5 and 50 kN/m, preferably 15-35 kN/m.
- 15 19. A milking device as claimed in any preceding claim, wherein the tensile strength of said material or combination of materials is 0.5-40 MPa, preferably 5-20 MPa.
- 20 20. A milking device as claimed in any preceding claim, wherein the elongation of said material or combination of materials is more than 200% before breakage, preferably more than 300%.
21. A milking device as claimed in any preceding claim, which is a teat cup liner, adapted to be positioned on/over a teat in a close fit.
- 25 22. A milking device as claimed in claim 21, comprising a head portion (22), a sleeve (24) and a milk tube (26) integrated in a unitary structure.
23. A milking device as claimed in claim 21, comprising a head portion (22), a sleeve (24) and a separate milk tube (26), connectable with the sleeve (24).
- 30 24. A teat cup assembly comprising a milking device as claimed in any preceding claim.
- 35 25. Use of a material or a combination of materials selected from i) a thermoplastic elastomer (TPE) as defined in ISO 18064, ii) plasticized PVC, iii) Vinyl TPE, said material or combination of materials exhibiting the following properties:

- a) a hardness between 25 shore A and 50 shore D;
- b) a Young's modulus between 0.1 MPa and 50 MPa;
- c) a tensile strength above 0.5 MPa; and
- d) a minimum elongation of 50% without breakage,

in the manufacture of a teat cup liner.

26. Use of a material or a combination of materials selected from i) a thermoplastic elastomer (TPE) as defined in ISO 18064, ii) plasticized PVC, iii) Vinyl TPE, said material or combination of materials exhibiting the following properties:

- a) a hardness between 25 shore A and 50 shore D;
- b) a Young's modulus between 0.1 MPa and 50 MPa;
- c) a tensile strength above 0.5 MPa; and
- d) a minimum elongation of 50% without breakage,

in the manufacture of a teat receiving sleeve for a teat cup liner.

27. Use of a material or a combination of materials selected from i) a thermoplastic elastomer (TPE) as defined in ISO 18064, ii) plasticized PVC, iii) Vinyl TPE, said material or combination of materials exhibiting the following properties:

- a) a hardness between 25 shore A and 50 shore D;
- b) a Young's modulus between 0.1 MPa and 50 MPa;
- c) a tensile strength above 0.5 MPa; and
- d) a minimum elongation of 50% without breakage,

in the manufacture of a short milk tubing connectable to a teat cup liner.